



SEQUENCE LISTING

GENERAL INFORMATION:

- (i) APPLICANT: Roncarolo, Maria-Grazia  
de Waal Malefyt, Rene  
Bacchetta, Rosa  
Groux, Herve M.  
de Vries, Jan E.
- (ii) TITLE OF INVENTION: USE OF INTERLEUKIN-10 TO PRODUCE A  
POPULATION OF SUPPRESSOR CELLS
- (iii) NUMBER OF SEQUENCES: 25
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: DNAX Research Institute
  - (B) STREET: 901 California Avenue
  - (C) CITY: Palo Alto
  - (D) STATE: California
  - (E) COUNTRY: USA
  - (F) ZIP: 94304-1104
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: Apple Macintosh
  - (C) OPERATING SYSTEM: Macintosh 7.5.5
  - (D) SOFTWARE: Microsoft Word 5.1a
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/643,810
  - (B) FILING DATE: 06-MAY-1996
  - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 07/846,208
  - (B) FILING DATE: 04-MAR-1992
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Ching, Edwin P.
  - (B) REGISTRATION NUMBER: 34,090
  - (C) REFERENCE/DOCKET NUMBER: DX0261K1
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: 415-852-9196
  - (B) TELEFAX: 415-496-1200

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 178 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Met His Ser Ser Ala Leu Leu Cys Cys Leu Val Leu Leu Thr Gly Val  
1 5 10 15  
Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His  
20 25 30  
Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe  
35 40 45  
Ser Arg Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu  
50 55 60  
Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys  
65 70 75 80  
Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro  
85 90 95  
Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu  
100 105 110  
Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys His Arg  
115 120 125  
Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn  
130 135 140  
Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu  
145 150 155 160  
Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile  
165 170 175  
Arg Asn

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 170 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Glu Arg Arg Leu Val Val Thr Leu Gln Cys Leu Val Leu Leu Tyr

1	5	10	15
Leu Ala Pro Glu Cys Gly Gly Thr Asp Gln Cys Asp Asn Phe Pro Gln			
20		25	30
Met Leu Arg Asp Leu Arg Asp Ala Phe Ser Arg Val Lys Thr Phe Phe			
35		40	45
Gln Thr Lys Asp Glu Val Asp Asn Leu Leu Leu Lys Glu Ser Leu Leu			
50		55	60
Glu Asp Phe Lys Gly Tyr Leu Gly Cys Gln Ala Leu Ser Glu Met Ile			
65		70	75
Gln Phe Tyr Leu Glu Glu Val Met Pro Gln Ala Glu Asn Gln Asp Pro			
85		90	95
Glu Ala Lys Asp His Val Asn Ser Leu Gly Glu Asn Leu Lys Thr Leu			
100		105	110
Arg Leu Arg Leu Arg Arg Cys His Arg Phe Leu Pro Cys Glu Asn Lys			
115		120	125
Ser Lys Ala Val Glu Gln Ile Lys Asn Ala Phe Asn Lys Leu Gln Glu			
130		135	140
Lys Gly Ile Tyr Lys Ala Met Ser Glu Phe Asp Ile Phe Ile Asn Tyr			
145		150	155
Ile Glu Ala Tyr Met Thr Ile Lys Ala Arg			
165		170	

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 160 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His Phe Pro			
1	5	10	15
Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe Ser Arg			
20		25	30
Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu Leu Leu			
35		40	45
Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys Gln Ala			
50		55	60

Leu	Ser	Glu	Met	Ile	Gln	Phe	Tyr	Leu	Glu	Glu	Val	Met	Pro	Gln	Ala
65					70					75					80
Glu	Asn	Gln	Asp	Pro	Asp	Ile	Lys	Ala	His	Val	Asn	Ser	Leu	Gly	Glu
			85						90					95	
Asn	Leu	Lys	Thr	Leu	Arg	Leu	Arg	Leu	Arg	Arg	Cys	His	Arg	Phe	Leu
			100					105					110		
Pro	Cys	Glu	Asn	Lys	Ser	Lys	Ala	Val	Glu	Gln	Val	Lys	Asn	Ala	Phe
		115					120					125			
Asn	Lys	Leu	Gln	Glu	Lys	Gly	Ile	Tyr	Lys	Ala	Met	Ser	Glu	Phe	Asp
	130					135					140				
Ile	Phe	Ile	Asn	Tyr	Ile	Glu	Ala	Tyr	Met	Thr	Met	Lys	Ile	Arg	Asn
145					150					155					160

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 147 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Thr	Asp	Gln	Cys	Asp	Asn	Phe	Pro	Gln	Met	Leu	Arg	Asp	Leu	Arg	Asp
1				5					10					15	
Ala	Phe	Ser	Arg	Val	Lys	Thr	Phe	Phe	Gln	Thr	Lys	Asp	Glu	Val	Asp
			20					25					30		
Asn	Leu	Leu	Leu	Lys	Glu	Ser	Leu	Leu	Glu	Asp	Phe	Lys	Gly	Tyr	Leu
		35					40					45			
Gly	Cys	Gln	Ala	Leu	Ser	Glu	Met	Ile	Gln	Phe	Tyr	Leu	Glu	Glu	Val
	50					55				60					
Met	Pro	Gln	Ala	Glu	Asn	Gln	Asp	Pro	Glu	Ala	Lys	Asp	His	Val	Asn
65					70					75					80
Ser	Leu	Gly	Glu	Asn	Leu	Lys	Thr	Leu	Arg	Leu	Arg	Leu	Arg	Arg	Cys
				85					90					95	
His	Arg	Phe	Leu	Pro	Cys	Glu	Asn	Lys	Ser	Lys	Ala	Val	Glu	Gln	Ile
			100					105					110		
Lys	Asn	Ala	Phe	Asn	Lys	Leu	Gln	Glu	Lys	Gly	Ile	Tyr	Lys	Ala	Met
		115						120				125			

Ser Glu Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Ile  
130 135 140

Lys Ala Arg  
145

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 15 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CTAAGGAGGT TTAAC

15

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

ATGAGCTCAT

10

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 60 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

AGCCCAGGCC AGGGCACCCA GTCTGAGAAC AGCTGCACCC ACTTCCCAGG TAACCGGTAC

60

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 56 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

CGGTTACCTG GGAAGTGGGT GCAGCTGTTC TCAGACTGGG TGCCCTGGCC TGGGCT

56

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 62 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GTAACCTGCC TAACATGCTT CGAGATCTCC GAGATGCCTT CAGCAGAGTG AAGACTTTCT

60

TT

62

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 48 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

CTTCACTCTG CTGAAGGCAT CTCGGAGATC TCGAAGCATG TTAGGCAG

48

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 35 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CAAATGAAGG ATCAGCTGGA CAACTTGTTT TTAAG

35

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 44 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

CTTAAGAACA AGTTGTCCAG CTGATCCTTC ATTTGAAAGA AAGT

44

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 69 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

GAGTCCTTGC TGGAGGACTT TAAGGGTTAC CTGGGTTGCC AAGCCTTGTC TGAGATGATC

60

CAGTTTTAT

69

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 73 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

GATCATCTCA GACAAGGCTT GGCAACCCAG GTAACCCTTA AAGTCCTCCA GCAAGGACTC 60  
CTAGATAAAA CTG 73

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 61 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

CTAGAGGAGG TGATGCCCCA AGCTGAGAAC CAAGACCCAG ACATCAAGGC GCATGTTAAC 60  
G 61

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 65 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

GTTAACATGC GCCTTGATGT CTGGGTCTTG GTTCTCAGCT TGGGGCATCA CCTCCTCTAG 60  
TCGAC 65

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 63 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA



(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

AACTCCCTGG GGGAGAACCT GAAGACCCTC AGGCTGAGGC TACGGCGCTG TCATCGATCT 60  
GCA 63

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 59 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GATCGATGAC AGCGCCGTAG CCTCAGCCTG AGGGTCTTCA GGTTCTCCCC CAGGGAGTT 59

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 60 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

CGATTTCTTC CCTGTCAAAA CAAGAGCAAG GCCGTGGAGC AGGTGAAGAA CGCGTGCATG 60

(2) INFORMATION FOR SEQ ID NO:20:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 54 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CACGCGTTCT TCACCTGCTC CACGGCCTTG CTCTTGTTTT GACAGGGAAG AAAT

54

(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 58 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

CGCGTTTAAT AATAAGCTCC AAGACAAAGG CATCTACAAA GCCATGAGTG AGTTTGAC

58

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 45 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

ACTCATGGCT TTGTAGATGC CTTTGTCTTG GAGCTTATTA TTAAA

45

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 51 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

ATCTTCATCA ACTACATAGA AGCCTACATG ACAATGAAGA TACGAACTG A

51

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 64 base pairs

(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

AGCTTCAGTT TCGTATCTTC ATTGTCATGT AGGCTTCTAT GTAGTTGATG AAGATGTCAA	60
ACTC	64

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 498 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

AATTCATGGA GCGAAGGTTA GTGGTCACTC TGCAGTGCCT GGTGCTGCTT TACCTGGCAC	60
CTGAGTGTGG AGGTACAGAC CAATGTGACA ATTTTCCCCA GACCTAAGAG ATGCCTTCAG	120
TCGTGTTAAA ACCTTTTTC AGACAAAGGA CGAGGTAGAT AACCTTTTGC TCAAGGAGTC	180
TCTGCTAGAG GACTTTAAGG ATGCCAGGCC CTGTCAGAAA TGATCCAATT CTACCTGGAG	240
GAAGTCATGC CACAGGCTGA AACCAGGACC CTGAAGCCAA AGACCATGTC AATTCTTTGG	300
GTGAAAATCT AAAGACCCTA CGGCTCCGCC TGCAGAGGTG CCACAGGTTC CTGCCGTGTG	360
AGAACAAGAG TAAAGCTGTG GAACAGATAA AAAATGCCTT TAACAAGCTG CAGGAAAAAG	420
GAATTTACAA AGCCATGAGT GAATTTGACA TTTTATTAA CTACATAGAA GCATACATGA	480
CAATTAAAGC CAGGTGAG	498

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 40 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

GAATTCCCAG GTTTAACGTA AGGAGGTTTA ACCATCGATG

40